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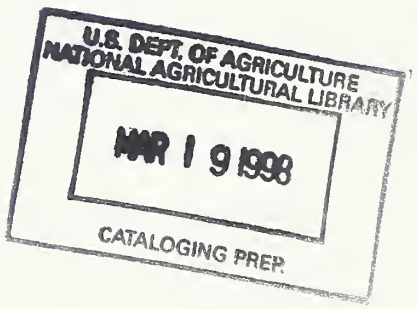
HEALTH SERVICES IN RURAL AMERICA



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ABSTRACT

Health care needs and services in rural areas are compared with those in urban areas, with the results indicating that rural people continue to have more health problems and less satisfactory care. Federal health care legislation and its effect on rural areas is discussed, particularly legislation pertaining to health manpower, health planning programs, health facilities construction, health care financing, and health programs for special groups. Examples of successful new public and private experimental health delivery programs are given, many of which focus on providing better health care to rural people.

Key words: Health services, health needs, health facilities, rural and health services.

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SUMMARY

Rural-urban statistical comparisons indicate that rural areas continue to be more in need of health services, but some progress toward better rural health care delivery is being made. In addition to Federal health legislation that in some instances bears directly on rural areas, several public and private groups are sponsoring experimental projects to meet the special health needs of rural people.

Government health manpower training programs are helping to increase professional, paramedical, and allied health manpower, which could help to reduce the shortage of health personnel in rural areas. Other legislation--designed to influence health personnel to serve in rural areas--provides for increased scholarships in rural medicine, guaranteed incomes for initial years of practice, and help with start-up costs.

Health planning legislation provides funds and technical assistance to State or areawide health agencies to help them develop comprehensive health plans for areas needing health services. Government health facilities construction programs have tended in recent years to focus on urban areas; however, legislation is proposed that would provide for satellite health centers to serve shortage areas, many of which would be rural.

Federal health legislation aimed at particular groups includes special social security benefits to miners who have been totally disabled by black lung disease and health programs for migrant farmworkers and their families.

Among the new and innovative programs to solve specific barriers to rural health care delivery are Government-sponsored projects located in sparsely populated rural areas. Under these projects, clinics have been established to provide physical examinations, treatment, and medication to persons who otherwise would not have access to such comprehensive health care. In many instances, services are free to persons whose income is below the poverty level. Some of the projects provide transportation for residents who live remote distances from the clinic, or mobile units go to the patients. A successful feature of many of these projects are family health workers, who are residents of the communities they serve and who are trained in very basic fundamentals of medicine. The workers visit their neighbors, inquiring about their health, following up on even minor illnesses, dispensing simple remedies such as cough medicine and aspirin, and recommending more extensive care when warranted.

Several medical schools are sponsoring projects in which senior-year medical and nursing students staff clinics in rural areas away from the school, either independently providing health care or assisting resident physicians. The medical schools' teaching physicians usually supervise the students and in some instances provide consulting or other special services for the projects.

National and State medical associations are also making efforts to supply health services to rural areas. Some associations offer incentives for physicians to practice in rural areas; some focus on the health care needs of special groups, such as American Indians and migrant farmworkers; and some offer assistance to local governments in planning health centers.

Private physicians and hospitals in many urban areas are cooperating to provide more comprehensive health care to persons in outlying rural areas. Some of the projects are benefiting areas where medical care was nonexistent, while others are providing assistance to overworked rural doctors and to rural hospitals lacking major medical facilities.

These pilot projects and the federally legislated programs are examples of efforts to alleviate the Nation's health care crisis, particularly as it affects rural areas. Compared with urban areas, rural areas have a more acute physician shortage: in 1970, the number of physicians per 100,000 population was 145.7 in urban areas, but only 69.1 in rural areas. The physician shortage in rural areas is confined largely to specialists, while the number of general practitioners is actually somewhat higher per capita in rural areas.

Nevertheless, rural people tend to visit physicians less often than do urban residents, perhaps because they must travel longer distances to obtain health care and because their incomes tend to be lower than those of urban people. Other rural-urban comparisons indicate that emergency health services are often more deficient in rural areas; work-related injury rates are higher; and a comprehensive approach to health care often is not present. There is evidence that health services could be organized in rural areas in ways that would greatly increase their effectiveness. Much remains to be done in improving health services in rural areas.

HEALTH SERVICES IN RURAL AMERICA

by

Tresa H. Matthews*

INTRODUCTION

Several measures indicate that the health of Americans has been improving steadily. Since 1950, life expectancy has increased 3.4 percent, the infant death rate has dropped 2.3 percent, the maternal death rate has gone down by 66 percent, and the neonatal death rate has fallen by 19.5 percent (37, pt. 1, p. 8). 1/ These statistics are representative of the Nation as a whole, but they tend to mask local differences.

In his health message to the Congress on March 2, 1972, President Nixon stated that "the United States now spends more than $75 billion annually on health care--and for most people, relatively good service results. Yet, despite this large annual national outlay, millions of citizens do not have adequate access to health care" (38).

Health services traditionally follow concentrations of people. Two-thirds of the people in the United States are currently reported to live on only 10 percent of the land. The other third are widely dispersed over the remaining 90 percent. The rural population tends to be less concentrated, less visible, less organized, but, in many areas, no less in need of health care than the urban population (10).

Health care needs are commonly considered to be greater in rural areas than in cities. For a variety of reasons studied by numerous commissions and committees through the years, rural people do not have the same opportunities for health care as do urban people. Admittedly, rural and urban areas differ widely in their characteristics, but generally speaking, in rural areas, the physician shortage is more acute; persons must travel longer distances to obtain health care; emergency health services are more deficient; work-related injury rates are higher; and a comprehensive approach to health care delivery often is not present.

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1/ Underscored numbers in parentheses refer to references listed at the end of this report.

It is important to note that whatever elements are attributed as comprising the health crisis in this country today, these typically are severely aggravated in rural areas. Several factors which characterize the rural population and differentiate it from the urban population contribute to rural health problems. For instance, rural family incomes are generally lower and a greater proportion of rural people live below the poverty line (table 1). Poverty in rural America dominates the lives of 12 million people or 17 percent of the rural population as a whole. One out of every six people in rural areas lives in poverty, compared with one of 10 in urban areas.

Table 1--Persons below the low-income level, by residence, 1970

Residence	Total U.S. population	Persons in poverty 1/	Percentage of total population in poverty
	Number		Percent
U.S. total	202,489,000	25,522,000	12.6
Metropolitan areas	130,907,000	13,378,000	10.2
Inside central city	57,290,000	8,165,000	14.3
Outside central city	73,617,000	5,213,000	7.1
Nonmetropolitan	71,580,000	12,142,000	17.0

1/ The classification of families and unrelated individuals as being below the low-income level is based on the poverty index adopted by a Federal interagency committee in 1969. This index is based on a sliding scale of income, adjusted for such factors as family size, sex and age of family head, number of children, and farm or nonfarm residence. To keep the poverty standard constant over time, thresholds are updated annually based on changes in the Consumer Price Index. The low-income threshold for a nonfarm family of four was $3,968 in 1970.

Source: (20, p. 36).

Poverty makes access to health care more difficult. Those in poverty often cannot pay for medical care nor for the means of transportation to reach that care. Poverty often means inadequate food and unsanitary housing, so the poor are often more susceptible to ill health. Some evidence for this conclusion may be found in data from a survey made by the Department of Health, Education, and Welfare (HEW): in 1968-69, the lower the family income, the higher the percentage of persons with limitation of activity due to chronic health conditions (table 2). Regardless of age, low family income had a direct relationship with a greater amount of health-related chronic limitation of activity (fig. 1). This relationship is admittedly two-way--health problems preventing work can also lead to low incomes.

Table 2--Percentage of persons with some limitation of activity due to chronic health conditions, by family income, 1968-69

Family income	Percentage of persons with some limitation of activity due to chronic health conditions
	Percent
Under $3,000	28.1
$3,000-$3,999	17.6
$4,000-$6,999	10.5
$7,000-$9,999	7.4
$10,000-$14,999	6.8
$15,000 and over	6.8

Source: (21).

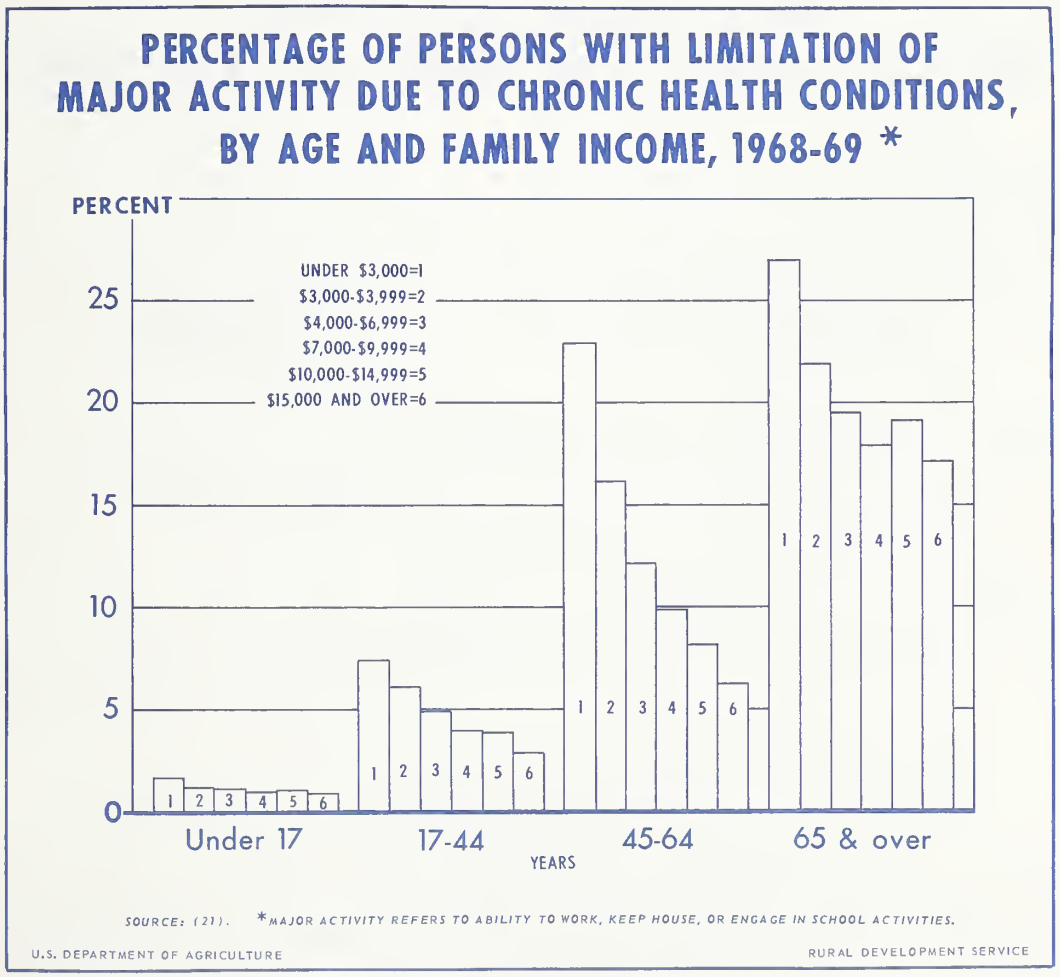

Figure 1

The level of education of rural people is lower than that of urban people. Without an education in good health practices, poor health may result. The annual number of days lost from work because of injury or illness declines sharply as the level of educational attainment increases (fig. 2).

Health Care Costs

A major element of the health care crisis is the high cost of health care. National health expenditures are rising sharply. From fiscal 1950 to fiscal 1971, total health expenditures rose from $12 billion to $75 billion (table 3). As a percentage of the gross national product (GNP), they increased from 4.6 to 7.4 percent. For each American, these large expenditures meant an average 1971 health bill of $358--more than 2-1/2 times the bill of 1960 and 4-1/2 times the 1950 bill (25, p. 79).

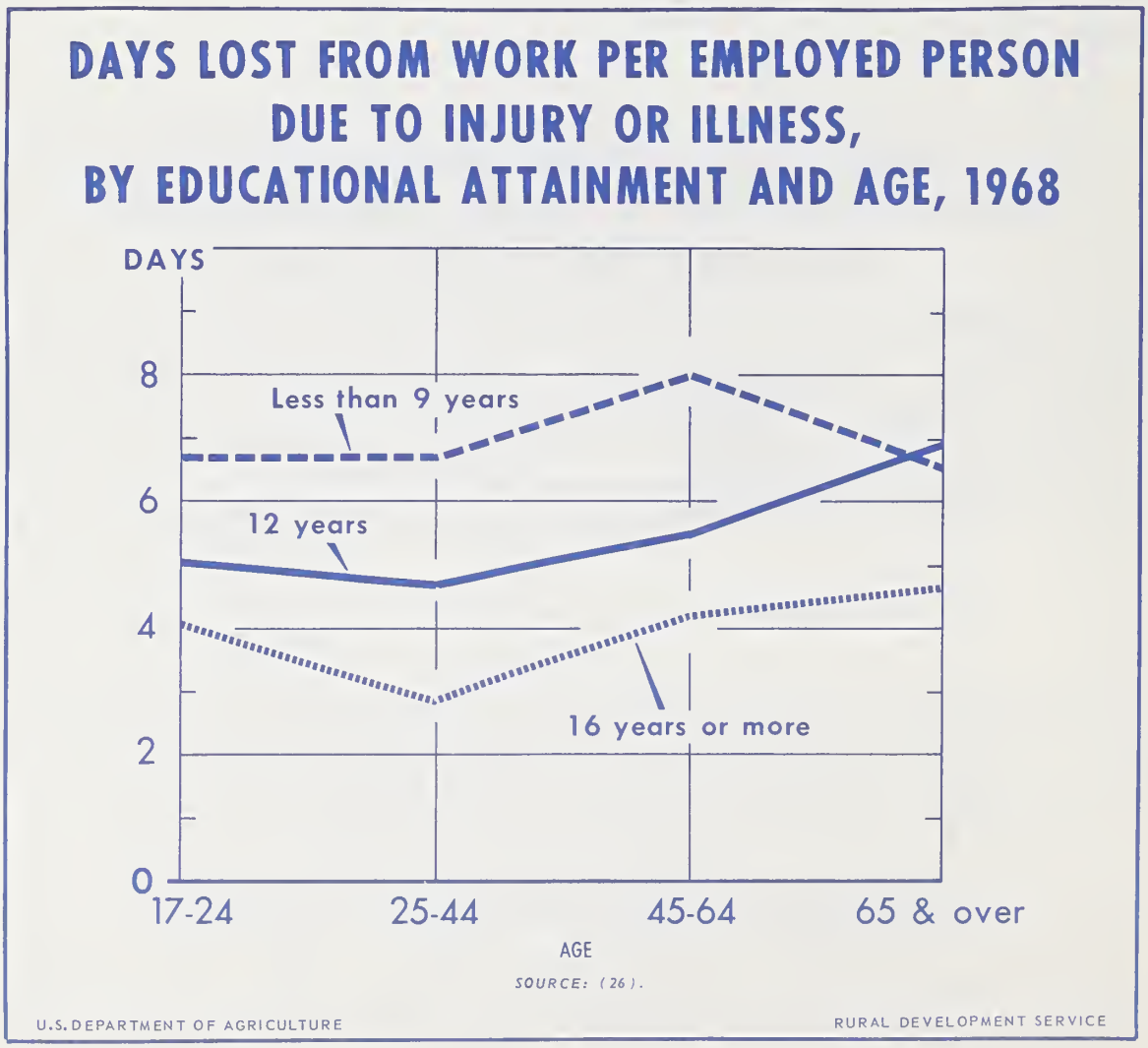

Figure 2

The increase in expenditures has been made up partly by an increase in prices and partly by an increase in real expenditures. But even the price of medical services has been going up faster than most other prices in the economy.

Since World War II, the Consumer Price Index (CPI) and its medical care components have been continuously rising. The increase in medical care prices has been growing faster than the economy in general. In the 1960's, however, the gap between the relative increases in these two indicators widened significantly (table 4). The CPI grew at an average annual rate of 3 percent during fiscal years 1946-60, with the medical care component increasing 4.2 percent. During fiscal years 1960-67, the rate of increase in the CPI slowed down perceptibly; however, medical care prices increased twice as fast as the price for all consumer items. The gap continued in the following 4 years, when medical care prices advanced at an average annual rate of 6.6 percent, compared with 4.8 percent for all consumer items (25).

Health costs are not expected to decline in the foreseeable future. HEW has published high and low projections of future national health expenditures (table 5). The low estimate for 1975 is $111 billion, or 7.9 percent of the estimated GNP. The high projection for 1975 is $120 billion, or 8.6 percent of estimated GNP. For 1980, the low estimate is $156 billion--8.0 percent of estimated GNP--and the high estimate is $189 billion. The high estimate represents 9.8 percent of the estimated GNP; that is, almost one out of every $10 in the American economy (37, pt. 1). According to these figures, each American will have an average health bill of $552 in 1975 and $814 in 1980 (25).

In 1971, hospital care was the largest single medical care expenditure, followed by physicians' services and drugs and drug sundries. Thirty-nine percent of total medical care outlays was for hospital care, 19 percent for physicians' services, and 10 percent for drugs and drug sundries (table 5). The 1975 and 1980 projections indicate that hospital care will not only continue to be the major medical care expenditure but will increase to 49 percent of total outlays.

The above projections are based on the assumption that 1970-75 and 1970-80 health care costs will increase at approximately the same rate as they did during 1960-68, with no major changes in public programs or financing of medical care; that no changes will occur in the organization and delivery of health care services; and that there will be no major advances in the treatment and care of patients (25, p. 89). Therefore, to the extent that the private and the public sector take action to alter the assumptions, the projections of the future will change. Nevertheless, these projections are valuable. They are the best statement available of what the future may look like if action is not taken (37, pt. 1, pp. 136-137).

Objectives of Report

This report discusses some of the latest available information on the problems of health care in rural areas. First, the most recent statistics on rural health care services and needs are presented. Second, some of the existing health legislation and programs which are available to rural areas are reviewed. Particular attention is given to those programs dealing with specific needs of rural areas as shown by recent statistics. Third, some

Table 3--Aggregate and per capita health expenditures, and aggregate expenditures as a percentage of gross national product, selected years, 1929-71

Fiscal year	Health expenditures		Percent of GNP
	Total	Per capita	
	Billion dollars	Dollars	Percent
1929	3.6	29	3.6
1935	2.8	22	4.1
1940	3.9	29	4.1
1950	12.0	78	4.6
1955	17.3	104	4.6
1960	25.9	142	5.2
1965	38.9	197	5.9
1970	67.8	327	7.1
1971	75.0	358	7.4

Source: (25).

Table 4--Average annual percentage increase in the Consumer Price Index and the medical care component, selected years, 1946-71

Fiscal years	Average annual percent increase	
	CPI, all items	Medical care
	Percent	
1946-60	3.0	4.2
1960-67	1.6	3.2
1967-71	4.8	6.6
1966-67	3.0	6.5
1967-68	3.3	6.4
1968-69	4.8	6.5
1969-70	5.9	6.4
1970-71	5.2	6.9

Source: (25).

Table 5--National expenditures for medical care, by type of service, 1971, and projections for 1975 and 1980

Type of service	Fiscal 1971	Fiscal 1975		Fiscal 1980	
		Low	High	Low	High
	Million dollars				
Total	75,012	110,716	120,051	155,703	189,242
Health services and supplies	69,479	104,829	113,480	148,916	180,600
Hospital care	29,628	48,197	52,425	76,393	92,604
Physicians' services	14,245	22,097	23,980	29,200	36,453
Dentists' services	4,660	6,593	7,128	8,389	10,590
Other professional services	1,475	2,226	2,417	2,784	3,506
Drugs and drug sundries	7,470	9,279	9,383	11,343	13,163
Eyeglasses and appliances	1,915	2,890	3,012	3,885	4,446
Nursing-home care	3,365	4,774	5,317	6,090	7,453
Expenses for prepayment and administration	2,296	2,669	2,777	3,288	3,717
Government public health activities	1,618	1,319	1,363	1,581	1,740
Other health services	2,807	4,785	5,178	5,963	6,928
Research and medical facilities construction	5,533	5,887	6,571	6,787	8,642
Research	2,019	2,245	2,460	2,565	3,140
Construction	3,514	3,642	4,111	4,222	5,502

Source: (25).

new approaches to the delivery of health care in rural areas are described. Although many of these approaches may be somewhat experimental, they may suggest means through which rural communities may be helped to solve their health care problems.

HEALTH SERVICES AND NEEDS IN RURAL AMERICA

Many of the aspects of the health care crisis in America differ in their nature and severity in rural areas. The following discussion compares rural and urban differences in the availability and use of health care services. Differences in the need for health care are also presented.

Health Personnel and Hospitals

Physicians

Studies of the distribution of physicians have indicated that physicians tend to move toward areas of high population density. An American Medical

Association (AMA) study of 1960-65 graduates of American medical schools showed that heavily populated communities were attracting more physicians per capita, as well as more physicians in total number (9). Rural counties with populations of less than 10,000 persons, which together accounted for 2.5 percent of the U.S. population, attracted less than 1 percent of the 1960-65 medical graduates. At the other extreme, counties with more than 2,000,000 residents--who accounted for only 12.8 percent of the total population--attracted 17.1 percent of the graduates. Thus, the ratio of population to physicians is inversely related to total county population.

In 1969, the physician-population ratio ranged from a low of 450 persons per physician in urban areas of 5,000,000 or more inhabitants to a high of 2,103 persons per physician in rural areas of less than 10,000 inhabitants (table 6). This is almost five times as many people per doctor in rural areas as in urban areas.

Table 6--Physician-population ratios, by size of county, 1969

County classification	Population per non-Federal physician
	Number
Total 1/	700
Nonmetropolitan:	
Less than 10,000 inhabitants	2,103
10,000-24,999 inhabitants	1,770
25,000-49,999 inhabitants	1,358
50,000 or more inhabitants	990
Metropolitan:	
Potential metropolitan	843
50,000-499,999 inhabitants	768
500,000-999,999 inhabitants	675
1,000,000-4,999,999 inhabitants	542
5,000,000 or more inhabitants	450

1/ Excludes Puerto Rico and possessions.

Source: (9).

An alternative measure of the disparity between physician-patient ratios in rural and urban areas is the ratio of physicians per 100,000 population. Another AMA study reports that in 1970, there were more than twice as many physicians per 100,000 population in metropolitan areas (145.7 physicians per 100,000) as there were in nonmetropolitan areas (69.1 physicians per 100,000) (table 7). This does not mean that people in non-SMSA areas are without care, but it does have two important implications. First, rural people may have to travel longer distances to find medical care. Second, if there are relatively few physicians in an area, it may be difficult to see doctors who may already

have more patients than they can handle. However, the shortage of physicians in rural areas is confined largely to specialists, while the number of general practitioners is actually somewhat higher per capita than in urban areas.

Nurses

Of all health manpower categories, nursing is the largest. As of January 1, 1967, about half the Nation's health manpower was employed in nursing: 640,000 registered nurses, 300,000 practical nurses, 700,000 aides, orderlies, and attendants, and 10,000 workers in a newly emerging group called home health aides (33).

Great variation is found geographically in nurse manpower. No two States in the Nation have the same ratio of nurses to population. In 1966, Arkansas at the lowest extreme, had 133 registered nurses per 100,000 population. Connecticut, at the top, had 474 nurses per 100,000 population. The average for rural areas is 223 nurses per 100,000 population, compared with 332 in urban areas (table 8). Not all of the nurses were necessarily actively working; also, double counting between States was eliminated.

Dentists

There is also a large difference between the number of dentists in rural and urban areas: in 1967, there were 26.2 more dentists per 100,000 population in urban than rural areas (table 8). Further evidence can be found in recent American Dental Association estimates of the total number of dentists relative to the total population on a State-by-State basis (1). In the District of Columbia, New York, and Oregon, there were less than 1,300 people per dentist in 1967. In the more rural States of Alabama, Arkansas, Mississippi, North Carolina, and South Carolina, there were over 3,000 people per dentist.

Use of Health Services

Table 9 shows that in 1969, the number of physician visits was highest among residents of metropolitan areas. Nonfarm residents outside metropolitan areas saw a physician slightly less often, and farm residents showed sharply lower frequencies of visit. For older persons, who visited physicians more often than did younger persons, the disparity between urban and rural areas narrowed. The largest rate of difference between rural farm and urban areas was for the 17-44 year olds.

In 1969, persons whose yearly income ranged between $4,000 and $9,999 utilized physician services less frequently than did persons with lower or higher incomes (table 10). For children, there was a direct relationship between income and use of physician services. Persons under 17 years old in households with income below $3,000 made an average of 2.7 visits to a physician in 1969, while those in households with $10,000 or more income made 4.2 visits. The difference in rate for children may reflect the use of medical services for preventive medicine among the well-to-do (well child care, immunization, and vaccination, for example).

Table 7--Distribution of physicians per 100,000 population, by SMSA and non-SMSA areas, 1970 1/

Non-Federal physicians	Total		Per 100,000 population	
	SMSA	Non-SMSA	SMSA	Non-SMSA
	Number			
Patient care	217,686	37,341	145.7	69.1
Office-based practice:				
General practice	34,359	16,457	23.0	30.4
Special practice	121,731	16,377	81.5	30.3
Hospital-based practice	61,596	4,507	41.2	8.3
Other professional activity 2/	24,403	1,914	16.3	3.5
Resident population	149,404,900	54,080,000	---	---

1/ A Standard Metropolitan Statistical Area (SMSA), defined at the time of the 1970 Census, generally consisted of a county or group of contiguous counties which contained at least one city of 50,000 inhabitants or more, or twin cities with a combined population of at least 50,000. The SMSA's are basically urban and the non-SMSA's are largely rural.

2/ Includes medical teaching, administration, research, and other health-care related work.

Source: (5).

Table 8--Distribution of selected health personnel per 100,000 population, by SMSA and non-SMSA areas, 1966-68

Health personnel	Year	Total		Per 100,000 population	
		SMSA	Non-SMSA	SMSA	Non-SMSA
		Number			
Pharmacists	1966	81,510	23,587	57.4	43.7
Registered nurses	1966	471,202	120,527	332.1	223.0
Dentists	1967	87,481	19,199	61.7	35.5
Physicians, D.O.	1967	8,850	2,387	6.2	4.1
Podiatrists	1968	7,170	15,433	5.1	1.5
Resident population	1966	141,894,000	54,039,100	---	---

Source: (28).

Table 9--Number of physician visits per person, by residence and age, 1969

Age	Place of residence		
	SMSA	Outside SMSA	
		Nonfarm	Farm
	Visits per person per year		
All ages	4.4	4.0	3.1
Under 17 years	3.8	3.2	2.3
17-44 years	4.3	4.0	2.6
45-64 years	4.9	4.5	3.7
65 + years	6.2	6.2	5.6

Source: (21).

Table 10--Number of physician visits per person, by family income and age, 1969

Age	Family income				
	Under $3,000	$3,000-$3,999	$4,000-$6,999	$7,000 $9,999	$10,000 and over
	Visits per person per year				
All ages	4.8	4.6	4.1	4.1	4.3
Under 17 years	2.7	2.8	3.1	3.7	4.2
17-44 years	4.5	4.7	4.1	4.1	4.2
45-65 years	5.5	5.5	4.8	4.7	4.3
65 + years	6.0	5.9	6.3	6.0	7.5

Source: (21).

The high rate of physician visits among persons with family income less than $3,000 reflects the need for medical care among elderly people, who comprise a high proportion of this income group. It also reflects the availability of free care through physicians and public clinics for the needy which is not available to persons with income above the poverty level.

An HEW survey of visits to medical specialists indicated that in fiscal 1964, urban families used such services much more often than did rural families. Among people residing outside metropolitan areas, nonfarm families had a higher rate of visitation than did farm families (table 11). These large differences between rural and urban areas may reflect the tendency of medical specialists to locate in urban areas. Families residing in rural areas visited chiropractors and optometrists more frequently than did families in metropolitan areas, whereas per family visits to podiatrists were much higher in metropolitan areas. The differences in number of visits to practitioners except podiatrists indicate higher use in rural than urban areas, and this may reflect the tendency of practitioners to locate in nonmetropolitan areas.

Another HEW survey showed that the annual rate of dental visits per person in metropolitan areas was 1.6 in 1969, compared with 1.2 for nonfarm residents of nonmetropolitan areas and 1.1 for farm residents (table 12). The differences may be explained by the greater availability of dentists in metropolitan areas.

A 1965 American Dental Association survey (1), which was based on a sample of dental patients, related dental care needs to size of city in which the patient resided and to family income. There was a generally direct, although not pronounced, relationship between size of city and dental needs (fig. 3). In regard to total number of fillings needed, the overall average was exceeded by patients residing in the three largest city-size categories and on farms. Patients living in cities or towns of under 25,000 inhabitants showed a lower than average need for cavity fillings. The need for extractions appeared to be more directly related to city size: Persons in the three largest city-size categories had needs that were greater than the overall average, and persons in the other three categories had less-than-average needs. Periodontal treatment needs, however, were greater in rural areas.

The differences in dental needs according to family income are shown in figure 4. The number of fillings needed varied somewhat according to family income. The difference was especially pronounced between the two highest income groups, with patients in the $10,000 and over income group needing a relatively low number of fillings. The high-income group also needed fewer extractions and less periodontal treatment.

These differences in dental care needs reported by the American Dental Association are partly a function of availability of dental services, but they may also be due to different levels of valuing dental services.

Hospitals

Of the 7,123 hospitals in the United States in 1970, community hospitals constituted by far the largest number--5,859 or 82 percent (table 13). The total number of hospitals was greater in rural than in urban areas. The number

Table 11--Visits per 100 families to selected medical specialists and practitioners, by residence, fiscal 1964

Type of specialist and practitioner	Place of residence		
	SMSA	Outside SMSA	
		Nonfarm	Farm
	Visits per 100 families per year		
Specialists:			
Pediatrician	92.0	46.0	15.1
Obstetrician and/or gynecologist	75.0	44.4	19.2
Ophthalmologist	42.3	28.3	25.6
Otolaryngologist	24.0	17.2	12.0
Orthopedist	23.7	14.3	9.1
Dermatologist	21.5	11.1	7.6
Psychiatrist	9.9	5.3	---
Practitioners:			
Chiropractor	26.4	38.5	64.8
Optometrist	42.1	43.6	45.2
Podiatrist	22.6	10.5	6.9

Source: (32).

Table 12--Number of dental visits per person, by residence and age, 1969

Age	All areas	Place of residence		
		SMSA	Outside SMSA	
			Nonfarm	Farm
	Visits per person per year			
All ages	1.5	1.6	1.2	1.1
0-5 years	0.4	0.5	0.4	*
6-16 years	1.9	2.2	1.5	1.5
17-44 years	1.6	1.7	1.5	1.3
45-64 years	1.6	1.8	1.1	1.0
65 + years	1.0	1.1	0.8	*

* Figure does not meet standard of reliability or precision.

Source: (22).

of beds per 100,000 population was also much larger in rural areas. Rural areas had 977.3 beds per 100,000 population, compared with 719.2 in urban areas. It does not appear that rural areas need more hospitals or beds. It would be useful to know the age and occupancy rates for these hospitals before further discussing needs for such facilities.

Mortality and Morbidity Rates

Mortality (the death rate) and morbidity (proportion of diseased persons in a given locality) have been the traditional measures of health. Infant mortality is perhaps the most popular of the mortality indices, largely because it is the most readily available. A decline in overall infant mortality is generally accepted as reflecting the effect of advances in medicine and maternal and child care, and improvements in medical facilities and economic and sanitary conditions.

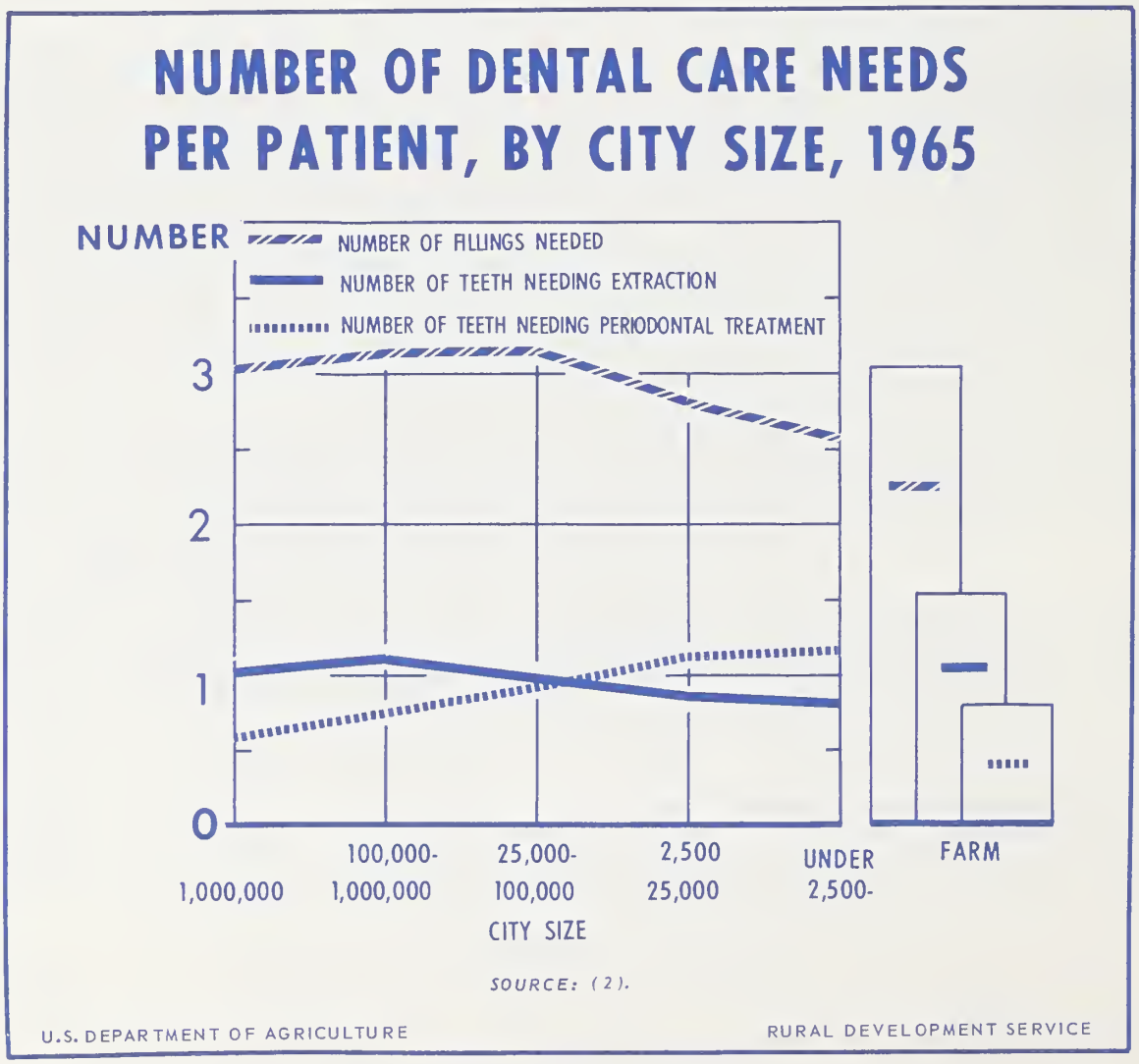

Figure 3

Table 13--Number of hospitals and hospital beds, and hospital beds per 100,000 population, by metropolitan and nonmetropolitan areas, 1970

Hospitals	Metropolitan		Nonmetropolitan		Metropolitan beds	Nonmetropolitan beds
	Hospitals	Beds 1/	Hospitals	Beds 1/		
	Number				Number per 1,000 population	
Total	3,449	1,074,585	3,674	528,546	719.2	977.3
Federal	236	114,874	172	43,465	76.9	80.4
Non-Federal	3,213	959,711	3,502	485,081	642.4	897.0
Psychiatric	357	309,559	162	200,439	207.2	370.6
Tuberculosis	66	13,794	35	5,283	9.2	9.8
Other long term	186	47,486	50	11,834	31.8	21.9
Community 2/	2,604	588,872	3,255	267,525	394.1	494.7
Resident population	149,404,900		54,080,400			

1/ Beds as of Sept. 1970.
2/ Non-Federal, short-term general and other special hospitals listed by the American Hospital Association.

Source: (3).

Mortality

Infant and maternal mortality rates are higher in nonmetropolitan than in metropolitan areas. In metropolitan areas in 1968, there were 23.0 infant deaths per 1,000 live births and 26.4 maternal deaths per 100,000 live births (table 14). This compares with the lower rates of 21.1 infant deaths per 1,000 live births and 23.6 maternal deaths per 100,000 live births in metropolitan areas. The infant mortality rates were highest in metropolitan areas among blacks and other racial and ethnic groups. Prenatal and postnatal programs would appear to be a central factor for some of these differences.

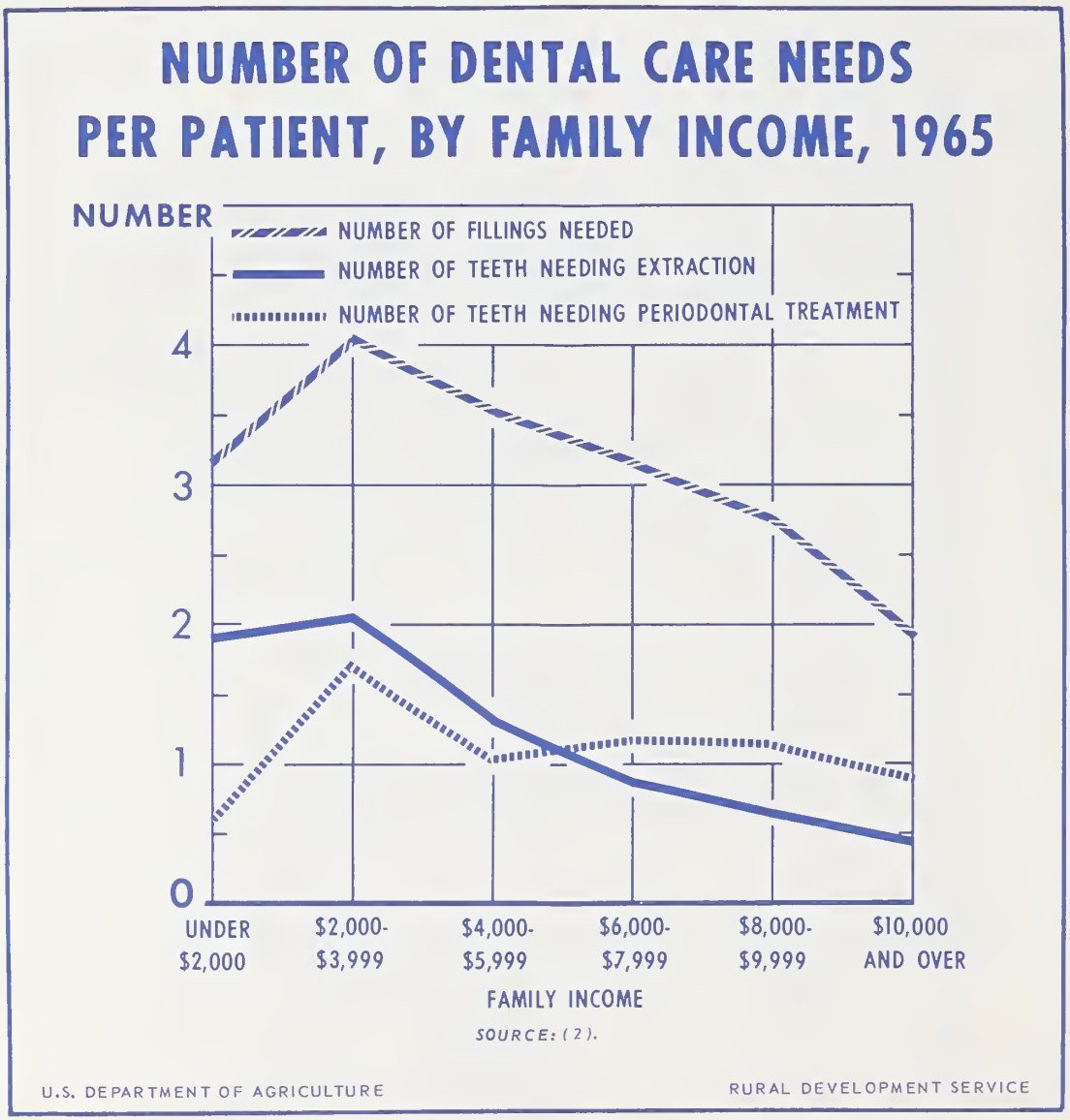

Figure 4

Table 14--Infant mortality rates and maternal mortality rates, by race and residence, 1968

Item	Metropolitan areas	Nonmetropolitan areas
	Deaths per 1,000 live births	
Infant mortality rates 1/	21.1	23.0
White	18.6	20.2
Negro and other races	32.5	39.3
	Deaths per 100,000 live births	
Maternal mortality rates 2/	23.6	26.4

1/ Number of deaths of infants in first year of life.
2/ Data not available by race.

Source: Unpublished data from U.S. Department of Labor, Bureau of Labor Statistics.

Chronic Conditions

During 1968-69, the total population averaged 15 days of restricted activity per person per year (table 15). (Restricted activity covers the range from substantial reduction to complete inactivity for an entire day.) Persons in rural nonfarm areas had a slightly higher number of days of restricted activity than did residents of urban or rural farm areas. This difference is accounted for by a higher number of restricted activity days among the elderly in rural nonfarm areas.

Table 15--Number of days of restricted activity due to chronic conditions per person, by age and residence, 1968-69

Area of residence	All ages	Under 17 years	17-44 years	45-64 years	65 and over
	Number of days per person per year				
All residences	15.0	9.9	11.8	20.4	34.3
SMSA	15.0	10.7	12.2	20.0	31.7
Outside SMSA:					
Nonfarm	15.4	8.8	11.3	21.9	39.3
Farm	13.1	7.1	9.3	17.4	32.5

Source: (21).

It is chronic conditions (any condition from a long list of generally recognized chronic illness such as heart disease, asthma, and diabetes) which cause the greatest overall loss of time from productive work and the greatest drain on family finances (13). The prevalence of such disorders is clearly higher in rural than in urban areas (table 16). About 13 percent of the rural people had some limitation due to chronic conditions, compared with 10 percent of the urban residents. The greatest difference between rural and urban areas was for persons 45 years old and older.

Table 16--Percentage of persons with limitation of activity due to chronic health conditions, by age and residence, 1968-69

Area of residence	All ages	Under 17 years	17-44 years	45-64 years	65 and over
			Percent		
SMSA	10.4	2.4	7.0	17.1	38.9
Outside SMSA:					
Nonfarm	12.7	2.4	7.7	21.8	47.4
Farm	13.8	1.6	8.4	21.0	50.2

Source: (21).

Another indication of the health of a population is the rate of rejection for military service. Data suggest that rural persons have higher military rejection rates than do urban residents (table 17). The rejection rate based on health and mental criteria shows that of the 27- to 34-year-olds who had been examined at any time for military service, the rejection rate was least for persons from cities and greatest for rural residents. In fact, the rejection rate was almost twice as high in rural areas.

Injury and Hospitalization

Results of an unpublished HEW health interview survey (22) indicated that rural nonfarm persons had a higher rate of injury than did either rural farm or urban residents (table 18). The term "persons injured" was limited to persons whose injuries either required medical attention or caused a reduction in usual activities for at least 1 day; minor injuries not meeting these criteria were excluded in the survey. These data limitations may partly explain why persons in farm areas had the lowest injury rate. Also, a farmer's loss of work may not be directly comparable with a nonfarmer's loss of work because the farmer's work schedule is much more flexible.

In an HEW survey of work-related injuries, which covered fiscal year 1967, male blue-collar workers in nonmetropolitan areas had the highest work-injury rate per 100 employed persons and the highest rate of restricted activity

Table 17--Percentage distribution of men 27-34 years old qualifying and not qualifying for military service, by place of origin, 1964 1/

Military experience	Large cities (100,000 or more)	Suburbs of large cities	Cities (25,000-99,999)	Town or small city (less than 25,000)	Rural	
					Nonfarm	Farm
	Percent					
Total 2/	100	100	100	100	100	100
Examined	90	87	87	86	84	82
Qualified:						
Served	71	70	67	68	58	55
Did not serve	7	5	4	4	3	6
Rejected	12	13	12	14	23	21
Not examined	10	13	13	14	16	18

Note: Although men had passed their military liability by age 26, those who were 27-34 in 1964 would have been eligible for the draft during the Berlin and Korean crises.

1/ Residence during childhood and adolescence before age 15.
2/ Detail may not add to total because of rounding.

Source: Unpublished data from U.S. Department of Labor, Bureau of Labor Statistics, as provided by National Opinion Research Center from National Sample Survey.

Table 18--Persons injured annually per 1,000 population, by area of residence, 1968-69

Area of residence	Persons injured per 1,000 population
	Number
SMSA	247.2
Outside SMSA:	
Nonfarm	255.8
Farm	225.2

Source: (21).

associated with these injuries. The rural blue-collar workers experienced about 28 more days lost from work than did the urban workers (table 19).

Table 19--Number of male blue-collar workers 17-64 years old injured while at work and associated days of disability, per 100 employed persons, by residence, fiscal 1967

Area of residence	Male blue-collar workers injured while at work	Restricted activity days	Bed disability days	Work loss days
	Number per 100 employed persons			
Total	31.1	295.0	75.1	146.8
SMSA	28.5	269.8	72.4	137.1
Outside SMSA	35.9	341.7	80.1	164.7

Source: (27).

Hospitalization reflects not only the presence of ill health, but also the ability of the family or community to provide the necessary care. In 1968, nonfarm residents living outside metropolitan areas had a greater frequency of hospitalization than did persons living in metropolitan or farm areas (table 20). This was true for all age groups except persons 65 years old and older. Farm area residents in this age group had the highest hospitalization rate--195 per 1,000 population, compared with 171 for nonfarm persons outside metropolitan areas and 143 for those residing in SMSA's.

Table 20--Number of persons hospitalized per 1,000 population, by age and place of residence, 1968

Age	SMSA	Outside SMSA	
		Nonfarm	Farm
	Number per 1,000 population		
All ages	93	103	88
Under 15 years	50	53	45
15-44 years	111	121	85
45-64 years	97	112	96
65 years and over	143	171	195

Source: (30).

A 1970 employment survey made by the Bureau of the Census obtained extensive socioeconomic information on the employment-related problems of disadvantaged persons in seven predominately rural areas and in 60 urban areas (19). Data on specific barriers to employment, such as health, were collected.

The rural areas--comprised of selected counties in Alabama, Appalachia, Arkansas, California, Missouri, New Mexico, and North Carolina--each represented a particular type of employment problem. 2/ The area in Alabama represents problems of the Deep South. The Appalachian counties are areas of mining and subsistence farming. The Arkansas area has a large Negro population displaced by cotton mechanization. The California counties represent a low-income pocket in the midst of a prosperous region. The Missouri area has a mixed economy of small farming, lumber, industry, and recreational services. New Mexico has a high concentration of two low-income groups--American Indians and Spanish Americans. North Carolina is a tobacco area where considerable displacement of small farmers and farmworkers may take place because of harvest mechanization.

The 60 urban areas--which represented 51 of the Nation's largest cities--were low-income areas whose boundaries were determined on the basis of such variables as size of welfare program, juvenile delinquency and illegitimate birth rates, and housing conditions.

The percentage of nonworkers who gave ill health as the main reason for not working was approximately the same in the rural and urban areas--22.9 and 23.4 percent, respectively (table 21). 3/ Among the seven rural areas, however, there were considerable differences. The Alabama area had the highest rate--34.5 percent, while the New Mexico area had the lowest rate--15.7 percent.

Data were also tabulated according to whether the nonworker was considered to be a member of the labor force. 4/ Here again, there was not much difference between the rural and urban areas in terms of the percentage of respondents mentioning ill health as a major employment barrier--16.1 percent of the rural respondents and 15.5 percent of the urban respondents. Among the seven rural areas, the percentages ranged from 10.8 percent in New Mexico to 26 percent in Appalachia.

In interpreting the small rural-urban differences mentioned above, the reader should note that the survey compares data from some of the most problem-blighted urban areas with data from low-income rural areas having differing, particular types of employment problems. In other words, the comparison is not simply all urban versus all rural in the usual gross sense. The differences among the seven rural areas, however, would indicate that even among rural counties, there are significant variations in incidences of illness.

2/ The counties in the respective areas were as follows. Alabama--Barbour, Bullock, Macon, Pike, and Russell. Appalachia--Floyd, Martin, and Pike in Kentucky; Buchanan, Dickesen, and Tazewell in Virginia; and McCowell and Mingo in West Virginia. Arkansas--Arkansas, Ashely, Bradley, Chicot, Crittenden, Cross, Desha, Drew, Lee, Lonoke, Monroe, Phillips, Praire, and St. Francis. California--Madera and Merced. Missouri--Carter, Dent, Howell, Oregon, Reynolds, Repley, Shannon, and Texas. New Mexico--McKinley, Sandoval, Sante Fe, and Valincia (excluding the Zuni Reservation). North Carolina--Bladen, Brunswick, Columbus, Cumberland, Duplin, Hoke, New Hanover, Onslow, Pender, Robeson, Sampson, and Scotland.

3/ For a definition of nonworkers, see footnote 3 to table 21.

4/ For a definition of nonworkers considered to be members of the labor force, see footnote 2 to table 21.

Table 21--Rural-urban differences in number and percentage of nonworkers giving ill health or disability as the main reason for not working, 1970 1/

Area	Persons in labor force 2/	Nonworkers, total 3/	Nonworkers giving ill health as the main reason for their not working		
			Total	As a percentage of total nonworkers	As a percentage of labor force
	Number			Percent	
Rural areas:					
Alabama	47,659	29,392	10,130	34.5	21.3
Appalachia	80,016	96,843	20,821	21.5	26.0
Arkansas	114,097	76,042	16,081	21.1	14.1
California	50,828	30,781	5,695	18.5	11.2
Missouri	31,576	28,242	6,643	23.5	21.0
North Carolina	193,786	103,921	25,690	24.7	13.3
New Mexico	29,086	20,086	3,150	15.7	10.8
Total rural	547,048	385,307	88,210	22.9	16.1
Total urban	4,975,000	3,284,000	767,000	23.4	15.4

1/ Based on a special 1970 employment survey made by the Bureau of the Census (19).

2/ Labor force: The survey defined labor force members as persons 16-64 years old who were employed, waiting to begin a new job, or actively seeking employment.

3/ Nonworkers: The survey defined nonworkers as persons 16-64 years old who did not work during the 12 months prior to the survey. Such persons were asked whether they looked for work during the year and if they looked, for how many weeks.

Insurance

In 1968, approximately 78.2 percent of the civilian, noninstitutional population under 65 years old had hospital insurance and 76.6 percent had surgical insurance (table 22). (Hospital insurance pays for the hospital bill, whereas surgical insurance pays the doctor's fees.) The rate of coverage for both types of insurance was higher in urban areas than in rural areas, with farm persons having the lowest rate of coverage of either type of insurance. The proportion of farm residents covered by hospital insurance was 61.9 percent--20 percent lower than the 81.3 percent of metropolitan residents having such coverage. Metropolitan residents have a greater opportunity to obtain group policies through their employers, and this may account for their higher rates of health insurance coverage.

Table 22--Percentage of persons under 65 years old having hospital and surgical insurance coverage, by residence, 1968

Area of residence	Hospital insurance 1/		Surgical insurance 1/	
	Covered	Not covered	Covered	Not covered
	Percent			
All residences	78.2	20.5	76.6	21.9
SMSA	81.3	17.4	79.6	18.9
Outside SMSA:				
Nonfarm	74.4	24.2	72.9	25.5
Farm	61.9	36.8	59.7	38.8

1/ Includes persons of unknown coverage status.

Source: (24).

Thus, one must conclude that rural and urban people do not have equal access to health care services. Rural areas are deficient in professional medical personnel, physical health care facilities, and the ability to afford the financial costs of illnesses.

Private health insurance and federally funded health care have been successful in providing some additional access to health care. Medicare, for example, is a federally funded health insurance program for the elderly. An example of such private insurance is a health plan under which persons pay in advance (usually on an annual basis) for health services provided by the same organization issuing the insurance. In effect, the plan combines prepaid health care with a group practice setting. However, rural areas continue to have less health care than do urban areas. One possible helpful action would be some "catch-up programs" of health care services in rural areas.

FEDERAL HEALTH LEGISLATION

A variety of Federal health legislation has been adopted or is now being considered, some of which bears directly on health care in rural areas. This section discusses some of the legislation pertaining to health manpower, health planning programs, health facilities construction, health care financing, and health care programs for special groups. Although many of the Government programs mentioned here are likely to change as legislation changes, this discussion provides information on the general scope and nature of Federal health care assistance.

Health Manpower

Manpower Development and Training

New and increased medical manpower, especially in the field of paramedical or allied health personnel, may be one solution to the medical manpower shortage in rural areas. Training programs authorized by the Comprehensive Health Manpower Training Act of 1971, which are administered by HEW, have given emphasis to increasing manpower in these fields.

Other HEW training programs, authorized by the Public Health Service Act, have given emphasis to increasing the quantity and quality of health professionals. For example, HEW's Environmental Health Service administers a program to train persons in techniques of controlling accidents and improving the safety of work environments. 5/ Another HEW agency--the Health Services and Mental Health Administration--administers mental health training programs designed to increase the number and improve the skills of people working in the area of mental health. 6/ Under this program, professionals are trained for clinical service, teaching, and research; technical training is provided for auxiliary personnel; and continuing education programs are provided for existing mental health manpower. This program could be of benefit in training skilled and unskilled persons in rural areas.

These federally legislated training programs provide for loans or grants to students, grants to educational institutions for construction, and general expenses and grants to hospitals for continuing education of their personnel. Rural areas will benefit indirectly from resulting improvements in medical technology and to the extent that new graduates go to rural areas, or to the extent that rural people are treated in hospitals whose manpower has been upgraded by these programs.

5/ For a detailed description of this program, see item 13.011, Occupational Health Training, in the Catalog of Federal Domestic Assistance Programs (CFDA), June 1972, which is published and periodically updated by the Office of Management and Budget.

6/ See CFDA, June 1972, item 13.241, Mental Health Fellowships, and item 13.244, Mental Health Training Grants.

New Types of Health Personnel

Several programs falling under the Public Health Service Act give emphasis to extensive research into new types of paramedic and allied health professions. 7/ These programs, many of which are especially suitable for rural areas, provide training courses for physician assistant, nurse practitioner, and other paramedical jobs. Under the MEDEX program, for example, former military corpsmen can train as civilian physician assistants.

Incentives for Rural Practice

The Emergency Health Personnel Act of 1970 and other legislation authorize programs to influence health personnel to serve in rural areas. The legislation provides for increased scholarships in rural medicine, guaranteed incomes for initial years of practice, and help with start-up costs.

A provision of the act is the National Health Service Corps, which is designed to provide health personnel for areas certified by HEW as having inadequate health services (16). The legislation specifies several incentives--ranging from deferment of military obligations to student loan forgiveness--for medical personnel to practice in rural areas for a specified period of time. The program also encourages Corps health personnel to stay in the area to which they are assigned after completion of their service.

A particularly interesting feature of the Corps programs is the extremely wide range of people who must participate in establishing a program. The law explicitly states that a need for health personnel must be certified by the local medical or dental society, the State-equivalent society, and the local government of the area. Development of the program must be a cooperative effort of the State and areawide comprehensive health planning agencies, the area's regional medical personnel, independent health practitioners, and the area's residents.

Comprehensive Health Planning

Health planning legislation provides funds to State or areawide health agencies to assist them in developing comprehensive health plans. The funds help to support the planning activities as well as to train persons in developing the plans. 8/ Enactment of the legislation was in part a recognition of

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7/ See CFDA, June 1972, items:
13.305, Allied Health Professions--Special Projects Grants
13.341, Health Professions Scholarships
13.342, Health Professions Student Loans
13.359, Special Projects Grants for Improvements in Nurse Training
13.363, Nursing Scholarships

8/ See CFDA, June 1972, items:
13.206, Comprehensive Health Planning--Areawide Grants
13.207, Comprehensive Health Planning--Grants to States
13.208, Comprehensive Health Planning--Training, Studies, and Demonstrations
13.210, Comprehensive Public Health Services Formula Grants
13.224, Health Services Development--Project Grants

the fact that adequate health care involves an allocation of resources among all aspects of health--delivery of health care; prevention of ill health; sanitation; control of unhealthy environmental factors; and provision of adequate transportation, administration, and social and other back-up services. Also, legislators recognized that new systems for health care delivery and its financing were essential. This new program calls for an areawide approach to health problems and attempts to involve both consumers and providers in the planning process.

Responsibility for rural health services has traditionally been assumed at the State and county level, primarily because rural areas have not had the resources for planning such services. Twenty-five to 50 percent of the funds for an areawide health planning agency must come from the community, and many rural areas are too poor to afford that amount. In some instances, rural leaders may look on planning as low priority rather than as an essential step in the immediate solution to their problems. Because of the importance of these factors, recent amendments encourage the States to undertake the responsibility of planning for nonmetropolitan areas. 9/ State planning agencies may now be directly funded to perform the areawide health planning function for rural areas (35).

Facilities Construction

Health facilities construction programs are administered by at least six different Government departments or agencies. They range from the Hill-Burton programs 10/--authorized in 1946 by the Hospital Survey and Construction Act and administered by HEW's Public Health Service--to recent programs of the Federal Housing Administration that make loans for development of group practice facilities. The various programs offer States a combination of grants, loans, and technical assistance for planning and constructing hospitals, public health centers, State health laboratories, outpatient centers, emergency rooms, neighborhood health centers, long-term care facilities, rehabilitation centers, and other health facilities. Under some of the programs, assistance in designing, constructing, and operating the facilities is available.

Particularly during the years following enactment of the Hill-Burton legislation, much attention was focused on providing rural areas with health facilities. Recently, however, the emphasis has shifted to urban areas, primarily because modern technology and staffing difficulties have resulted in many rural hospitals being only partially used or empty.

An Administration proposal for satellite centers for teaching and health service in shortage areas could be a base for improving health delivery and relating programs to medical schools and regional centers near rural areas.

9/ See CFDA, June 1972, items:
13.206, Comprehensive Health Planning--Areawide Grants
13.314 (b), Partnership for Health

10/ See CFDA, June 1972, items:
13.220, Health Facilities Construction--Grants
13.223, Health Facilities Construction--Technical Assistance
13.253, Health Facilities Construction--Loans and Loan Guarantees

Financing Health Care

Health care laws have been changing rapidly, and recent research and proposed legislation indicate that they will continue to change. Discussion has focused not only on the problem of financing health care, but also on revising health care delivery systems. For example, a recent HEW Task Force on Medicaid and Related Problems concluded that experience with Medicare and Medicaid programs suggests that more effective delivery of these programs is needed (31).

As a result, several proposals for establishing more Health Maintenance Organization (HMO's) have been made. HMO's contract with individuals to provide medical services, typically for a fixed monthly fee. Therefore, it is believed that if there are more HMO's, more emphasis will be placed on preventive rather than curative medicine.

Numerous proposals have been made for revising the way in which medical care is financed. These range from very complete Federal health insurance plans to greatly expanded use of private health insurance, perhaps through Federal requirements that employers provide more adequate health insurance for their employees, with the employees paying part of the cost.

Programs for Special Groups

There are many programs aimed toward particular groups of people with special health problems.

Maternal and Child Health

Rural areas will benefit along with the rest of the population from the numerous maternal and child health programs. 11/ These programs provide financial support to States to extend and improve services (especially in rural areas and in areas suffering from severe economic distress) to reduce infant mortality and to improve the health of mothers and children.

Care of Aged

Today, there are more than 20 million Americans over the age of 65. The fact that about 10 percent of the retired persons over 65 live primarily on social security benefits points to a significant need to finance their health care. Because many short-term acute illnesses can now be controlled, the more serious chronic diseases have become the primary causes of sickness and death. These diseases often originate early in one's life, but lack of proper preventive measures, complicated by the degenerative process accompanying old age,

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11/ See CFDA, June 1972, items:
13.230, Intensive Infant Care Projects
13.232, Maternal and Child Health Services
13.233, Maternal and Child Health Training
13.234, Maternity and Infant Care Projects

force symptoms and manifestations of these illnesses to become more acute in later years. It is in these years, the years after retirement when income is limited, that illness is more devastating, both physically and financially (35).

The Health Insurance for the Aged program, commonly called Medicare, helps to finance health care for and ensures its availability to the elderly. Medicare is a hospital insurance and a supplementary medical insurance. The hospital insurance provides insurance protection for covered hospital services to any person 65 or over who is entitled to social security or railroad retirement benefits. The supplementary insurance covers physicians' services and certain other medical services and supplies which are necessary but not covered under the hospital insurance program. Although Medicare has provided the elderly in rural areas with a payment mechanism, it has not generated a network of available sources near their homes.

Several programs provide funds to State agencies to help provide local community services for the aged. Under these programs 12/, more than 1,000 communities have established services related to health, housing, transportation, nursing, education, and recreation (35).

Care of Disabled

A variety of programs are designed for disabled persons, such as mentally retarded children. 13/ The 1960 White House Conference on Children and Youth recommended:

> ...that community facilities for diagnosis and identification be readily accessible to anyone suspected of a mental handicap... direct special attention to the needs of rural areas.

Because the mentally retarded in the city are easier to locate and, therefore, seem to present the largest number of the retarded population, they have in the past received the most care. More emphasis will be given to rural areas in the future.

Of special significance to rural areas are the 1969 Social Security Administration amendments that provide special benefits to miners who are totally disabled by black lung disease. 14/

Migrant Workers

The Public Health Service Act also provides for grants to establish health programs for migrant farmworkers and their families. 15/ The law states that the grants may be used to develop clinics to provide primary health care for the migrants and other seasonal farmworkers.

12/ See CFDA, June 1972, item 13.756, Aging--Special Support Projects
13/ See CFDA, June 1972, items:
13.259, Mental Health--Children's Support
13.753, Developmentally Disabled--Basic Support
14/ See CFDA, June 1972, item 13.806, Special Benefits for Disabled Coal Miners
15/ See CFDA, June 1972, item 13.246, Migrant Health Care

Rural-Urban Differences

The programs discussed above are only examples of the many health and health-related programs funded by the Federal Government. 16/ In some instances, the programs focus on rural areas, but the majority of these federally funded programs are not designated specifically for rural or urban areas. Available evidence indicates that Federal health care spending disproportionately favors metropolitan areas--in a recent study, for example, it was shown that per capita 1970 Federal outlays for health care were four times greater in metropolitan areas (34).

Perhaps an important way of improving some of the health programs reviewed is to further emphasize overcoming the difficult problems of delivering health care. A discussion of numerous demonstration programs for health care delivery in rural areas follows.

PILOT RURAL HEALTH CARE PROGRAMS

To help reduce financial, geographic, and attitudinal barriers to rural health care delivery, numerous governmental and professional groups--such as medical schools, medical associations, and private physicians and foundations--are developing, implementing, and evaluating innovative rural health care programs. Some of these pilot programs are described below. They highlight the variety of models being designed to meet diverse conditions in rural areas and reflect the wide range of public and private concern for solutions to rural health care problems.

Government-Sponsored Programs

South Carolina

The Beaufort-Jasper, Comprehensive Health Services, Inc., was created in June 1970 by an Office of Economic Opportunity (OEO) grant of $754,373 (11). After 9 months of planning, staffing, organizing and setting up facilities, the project leaders opened a main office in the city of Beaufort and four satellite health centers. These are located in Sheldon and on St. Helena Island in Beaufort County, and in Hardevill and Grays in Jasper County. A fifth center in Beaufort County is under construction and will open sometime in 1973.

The health services project started out with a comprehensive medical team working in and out of each center: a doctor, one or two registered nurses, a licensed practical nurse, three to eight family health workers, a medical records clerk, and a receptionist. Two MEDEX, who had served 20 years as

16/ For examples of other programs, see CFDA, June 1972, items:
13.228, Indian Health Services
13.229, Indian Sanitation Facilities
13.235, Mental Health
13.200, Communicable Disease Prevention and Control--Consultation and Technical Assistance

military corpsmen, served on two of the teams. The project hired a dentist, who works out of a mobile dental unit in Jasper County, which has only one dentist. The area's Head Start program donated $10,000 toward this unit in return for dental care for children enrolled in the program.

Laboratory facilities for the whole project are set up in one center and another center has a well-stocked pharmacy. The facilities, loaned or leased from the county Public Health Department, are well-equipped clinics with examining and treatment rooms, small labs, and interviewing and waiting rooms. Mobile units or trailers alongside each center serve as administrative and records-keeping offices.

The project's services are free to persons whose income is below the poverty guidelines ($3,200 for a rural family of four). Physical examinations, treatment, medication, and prescriptions are provided for many rural poor people who never before had access to such comprehensive health care.

West Virginia

In 1970, HEW and OEO began funding a Family Health Service program in rural Elkins, W. Va. (12). Backing up this program, which serves residents of Randolph County, is the Elkins Memorial General Hospital. In all, 44 persons are on the staff and every doctor in town except one is affiliated with the program.

The acceptance and success of the Elkins plan is at least partially due to shuttle buses that go back into the mountains as far as 50 miles to bring sick people to town and to the development of a corps of family health workers. The family health workers, who are residents of the communities they serve and who are trained in very basic fundamentals of medicine, are well known and trusted by their neighbors. They visit residents of their communities, inquiring about their health and following up on even minor illnesses--with the goal of preventing a bad cold from becoming pneumonia, for example. The workers prescribe simple remedies--such as cough medicine or aspirin--and urge residents to visit a doctor in Elkins when their illness warrants more professional attention.

From May 19, 1971, through October 1972, 7,000 families and more than 15,000 persons--roughly half the population of Randolph County--had been enrolled in this program. Payment for care is pegged to income and family size.

Pennsylvania

During 1967-69, the Pennsylvania Department of Health sponsored a project called A Demonstration in the Organization of Community Health Resources (29). The project was funded by HEW's Health Services and Mental Health Administration. Chosen for the demonstration were five rural counties in central Pennsylvania--Montour, Columbia, Northumberland, Snyder, and Union. The project had three purposes:

1. To develop local community organizations in the rural areas that would identify and coordinate existing community health services and that would plan and implement supplemental programs.

2. To demonstrate that through committee participation, community leaders would become familiar with and interested in health needs, methods of obtaining financial support, and procedures for implementing program plans.

3. To test a demonstration system for the delivery of health services to rural areas based on self-supportive community action.

These goals were substantially met. Through committee organization, local problems were identified, priorities were set, and the most feasible methods of obtaining financial support were determined.

A survey of 1,000 representative households was conducted to determine how rural people felt about their own health needs and problems. Task forces were established under local leadership to evaluate identified problems, such as the need to improve emergency health services, the need to coordinate and expand home health services, and the need to provide comprehensive dental care to all children in the area. Task force activity has continued following the conclusion of the 26-month study.

Medical School Programs

University of Washington Medical School

A MEDEX program at the University of Washington trained former military corpsmen to assist rural physicians (23). The trainees received 3 months of classroom instruction and then spent 12 months with a physician in practice. An elaborate program of matching physicians with the MEDEX was developed. Fourteen MEDEX were trained in 1970. They were hired at annual salaries ranging from $8,000-$12,000. This type of program was established in four other States in 1971, with a goal of training 230 MEDEX.

In a study of methodological issues in measuring ambulatory care in Washington State, it was estimated that 34 percent more patient visits were achieved with the use of the MEDEX at an average decrease of 12 hours per week in the physician's time (23).

Kirksville College of Osteopathy

The Kirksville College of Osteopathy and Surgery in rural northeast Missouri operates 11 health care clinics in communities that would otherwise go without medical care (6). During a medical student's senior year at the college, the student spends 4 months at one of the clinics, all of which are within a 40-mile radius of the school. Depending on the patient load, each clinic is served by one to four students at a time.

In most respects, the students--who are within a matter of months of receiving their degrees as physicians--have full reign over the clinics. However, the 11 clinics are visited daily by one of five full-time supervisors from the college. These fully licensed physicians check the preceding day's patient records and discuss the more difficult cases with the student doctors. If

medication is required, the student calls the supervisor before administering the drug. Prescriptions are signed by the supervisor within 24 hours after medicine was dispensed. In addition to their daily visits to the clinics, the supervisors are available by telephone if a student doctor feels the need for consultation on a problem case.

Each clinic is well equipped with a pharmacy, small laboratory, instruments, and pleasantly furnished waiting and examination rooms. If specialized or extended treatment is required, patients are referred to the college hospital in Kirksville, or they may enter a hospital of their choice. Hours are maintained in the clinics 6 days a week, and student doctors often make house calls. This rural clinic program has joined medical education with rural health care delivery in northeast Missouri.

Oklahoma Medical School

In 1968, the Oklahoma Medical School developed a pilot health care system with community support in Wakita, Okla. (11). The town of Wakita, which is 135 miles northeast of Oklahoma City, has a population of 450, with about 8,500 people living within a 25-mile radius of the town. The citizens of Wakita have built a modern community health center staffed by an internist, a pediatrician, a general practitioner, and supporting personnel. No other physicians or medical facilities are available within 40 miles. The physicians teach at the university and have a group-practice arrangement on a fee-for-service basis at the Wakita health center. Residents in family practice and preventive medicine, as well as medical students and other health professionals from the University of Oklahoma Medical Center, serve with the physicians on a rotation basis at the health center.

University of Florida Medical College

The University of Florida Medical College has developed a health services clinic to serve residents of Lafayette County, Fla., a sparsely settled, economically poor, rural county with a population of about 3,000 persons (11). The clinic is located in Mayo, the county seat, which has a population of about 800 people. Medical students and nurses work with resident physicians from the college. All medical students from the college will rotate through the clinic as part of their training in community medicine. While they work at the clinic, they live in Mayo and receive a small stipend to cover additional living expenses. The clinic has liberal hours--from 8:30 a.m. to 9:00 p.m.--and the students and physicians are available 24 hours a day, 7 days a week.

Lafayette County residents comprise the Community Advisory Committee that was formed to help plan and operate the clinic, which serves all county residents, not just low-income persons. A fee-for-service is charged patients who are able to pay, and this has helped to make the clinic self-supporting.

Medical Association Programs

Illinois State Medical Society

The Illinois Agricultural Association (IAA) and the Illinois State Medical Society joined together in a program to supply more doctors to rural Illinois (18). The IAA established a medical student loan program with the understanding that a student who receives a loan must agree to practice medicine in an Illinois town for 5 years after the conclusion of his formal training. Such loans can amount to as much as $7,500 over a 5-year period and are repaid at an interest rate of 2 percent. In addition to loan assistance, the program recommends students for admission to the University of Illinois College of Medicine in Chicago.

Approximately 70 doctors are now practicing in Illinois as a result of this assistance. For 1972, 24 students were accepted by the University of Illinois for medical training through the IAA program.

Student American Medical Association

The Student American Medical Association (SAMA) has been involved in several programs for improving health care delivery in rural areas (17). The Appalachian Summer Program--the initial program, which started in 1969--involved 98 medical and 20 nursing students who worked in eight States--Pennsylvania, Ohio, Virginia, West Virginia, Kentucky, North Carolina, Alabama, and Georgia.

The original project attempted to meet the health manpower needs of the Appalachian region by exposing young health professional students to such situations in the hope that the experience would induce them to practice professionally in rural Appalachia. SAMA expected that while the students were in Appalachia, each would--to the extent of his ability--provide basic health care whenever possible.

Another SAMA program was the Indian Health Project. During the summer of 1970, 19 medical, nursing, dental, and pharmacy students, representing every part of the country and selected from among 80 applicants, spent 10 weeks on seven Indian reservations in Arizona. The 19 participants were divided into seven teams and located throughout Arizona. One team of two medical students and a nursing student decided to make their project the areawide operation of a mobile TB chest X-ray unit. Another team conducted a screening study on diabetes. The screening identified nine new diabetics--for whom treatment was initiated immediately.

The primary goal of the SAMA Migrant Health Project--which took place during the summer of 1971--was to sensitize students to the problems of providing health care to migrant farmworkers. Students assisted in delivering basic preventive medicine to migrant farmworkers in Oregon and attempted to make the farmworkers better informed about factors affecting their health. Upon returning to school, each student participant was expected to help increase minority admission at the school and to aid local community organizations in establishing clinics, in improving existing services to migrants, or in doing whatever was pertinent to aid local residents.

New York State Medical Society

The New York State Society's Committee on Rural Medicine is sponsoring a "cross-roads medical center" project, which involves establishing multiple "physicians" centers in rural areas in the State (11). As a result of a pilot study of three rural areas in need of medical services, it is estimated that each center would cover a geographical area of possibly four or five adjoining communities. Together these communities would have to have a population base--of approximately 10,000 to 30,000 residents--to support quality medical care. Until permanent physicians would be assigned to the centers, physicians practicing in nearby communities would staff the centers on a part-time basis. Hospitals and other medical facilities in nearby cities would cooperate with the centers in providing health care, and physicians from these cities would have staff appointments at the centers.

Private Programs

Monterey County Physicians

In southern Monterey County, Calif., 10 private physicians and 80 supporting staff members have undertaken to provide comprehensive medical care to all eligible low-income residents, including migrant workers (4). Under this program--entitled the Rural Health Project--patients are cared for in the same facilities and by the same medical staff that serve other members of the community.

Transportation--including a van equipped for wheelchair patients--serves the entire project area. The project, which is funded by an OEO grant to the Monterey County Medical Society, is an experiment concerned with developing a new way of organizing indigent care and at the same time providing a basis for comprehensive health planning at the local level. 17/

Illinois Physicians-on-Call

In central and northern Illinois, the Nation's first corps of airborne doctors has been founded by a private physician (8). Called Physicians-on-Call, it consists of about 70 doctors, all of them young, who operate out of large office-type stores in a community not far from Chicago.

Traveling exclusively by air, these doctors bring help and treatment to communities where on-the-scene medical personnel is either scarce or nonexistent. Working in small hospitals, clinics, and other local facilities for anywhere from half a day to a full week, they examine patients, provide treatment, perform operations, and offer other medical services which people in small towns and rural communities are finding increasingly difficult to obtain.

Some 15 hospitals in the area are currently making use of the Physicians-on-Call service. Coverage and assignments of the doctors are handled by a

17/ OEO funds were granted within the purposes of PL 89-749, Comprehensive Health Planning and Public Health Services Amendments of 1966.

full-time scheduling secretary. In addition to benefiting patients in the area, Physicians-on-Call has brought help to many overworked physicians who have stayed in practice in remote areas despite heavy caseloads.

Some medical authorities believe that this program will help keep physicians in their rural posts by offering them an opportunity to get away now and then to attend medical meetings in large cities, or simply by taking vacations they cannot enjoy now without abandoning their responsibilities.

Sears-Roebuck Foundation

The Sears-Roebuck Foundation has established a community medical assistance plan to supply educational guidance to towns that want to improve health care for their residents (11). For example, the plan provides information which will help a community decide whether it can support a physician. This information is gathered from physicians currently practicing in the trading areas, State, and county medical societies, and other informed individuals involved in health services. Information is also provided to assist the community raise funds and establish a medical facility on a sound financial basis. In cooperation with the American Medical Society, this program has helped 165 communities with populations of between 800 and 5,000 to acquire medical facilities for two or more physicians.

Kentucky Dentists

Physicians and dentists in Kentucky are taking to a form of reverse strategy to provide care to persons unable to reach medical centers (15). Mobile medical units--vans, trailers, trucks, or buses equipped with health-care equipment--have provided a means to reach innercity patients as well as remote rural populations. Covington, Ky., for example, has been operating a mobile dental clinic since December 1970. Another such mobile unit has been put into use in West Virginia.

Samaritan Health Services

Good Samaritan Hospital, a major medical center in Phoenix, Ariz., is the sponsor of a 2-year old experiment to find new ways of providing medical care to both rural and urban residents of the State (7). The hospital has formed the Samaritan Health Services--a consortium of hospitals in outlying areas and Good Samaritan. Personnel in the outlying hospitals are given refresher courses at Good Samaritan and special health personnel from Good Samaritan are sent to the outlying hospitals when their services are needed. Resident physicians in the outlying hospitals can confer daily by telephone with experts at Good Samaritan. Patients with critical and complicated illnesses are flown to Good Samaritan for treatment.

A good part of the consortium's job has been keeping the outlying hospitals supplied with doctors and nurses. The Samaritan Health Service has also kept two hospitals open in northern Arizona by being able to move doctors there and relieve them when necessary. The outlying hospitals' access to sophisticated

medicine has also been improved. These hospitals can now offer medical tests that are impossible to perform in their small hospital laboratory. A car makes a circuit of each hospital daily and picks up samples to be tested in the Good Samaritan laboratory. The results are telephoned back to the individual hospital. Dieticians from Good Samaritan travel to the smaller hospitals and help them plan their meals. Other experts help set up better billing systems and community relations campaigns--services that small hospitals couldn't afford on their own.

CONCLUSIONS

The shortage of health personnel and facilities continues to be particularly acute in rural America. The number of rural counties without a doctor is increasing and will probably continue to increase as elderly physicians die, retire, or move away and are not replaced. It is not the number of doctors per rural county that is a major problem, however, but rather the physician-population ratio in rural areas and the fact that rural people must travel long distances to receive specialized medical care. In addition, rural hospitals are small, often inefficiently operated, and generally do not provide comprehensive health services.

The federally funded programs discussed here--health manpower training and comprehensive health planning assistance, for example--may help to provide more adequate health services in rural areas. The proposals for new ways of financing health care--new types of insurance programs, for example--may help rural people to meet the rising cost of health care.

Although rural and urban areas have many health care problems in common, the different types of populations and spatial variations in rural areas call for new and different health care delivery systems in rural areas. The special demonstration projects described in this report are excellent examples of efforts to meet the special needs of rural people. Most of these projects are still in the developmental stage, and it is difficult to predict which approach or combination of approaches would be widely applicable. It is hoped, however, that the experience gained from these and other such projects will help local health planners in developing guidelines for their own unique and specific needs.

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